

# Boundary and Annexation Survey Respondent Guide: Digital BAS

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U S C E N S U S B U R E A U

*Helping You Make Informed Decisions*

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# 1. Introduction to the Digital Boundary and Annexation Survey (BAS)

## 1.1 Overview of the BAS

The Census Bureau conducts an annual survey called the Boundary and Annexation Survey (BAS) to collect information about selected legally defined geographic areas, such as counties (and equivalent areas), incorporated places, minor civil divisions (MCDs), as well as federally recognized American Indian reservations, including off-reservation trust lands and tribal subdivisions. The BAS also provides an opportunity for participants to review the names and geographic relationships for these areas. Title 13, U.S. Census Code authorizes this survey.

BAS information is used to provide a record for reporting the results of the decennial and economic censuses, and to support the Population Estimates Program and the American Community Survey. Maintaining correct boundaries and boundary-to-feature relationships through the BAS helps ensure that the appropriate population is assigned to each entity. In compliance with the Office of Management and Budget Circular A-16, the BAS supports the Census Bureau's spatial data steward responsibilities for the Federal Geographic Data Committee and the Geospatial One-Stop by updating the inventory of, and boundaries for, governmental units. In addition, the BAS is the source of up-to-date information on boundaries, codes, and names for the U.S. Geological Survey's (USGS) National Map and the Geographic Names Information System. The BAS is also the source for changes in the boundary of incorporated places, minor civil divisions (MCDs), counties (and equivalent areas), and federally recognized American Indian areas, which include reservations and off-reservation trust lands.

## 1.2 Specific State Arrangements and Agreements

The Census Bureau has established a number of arrangements or agreements with states for reporting boundary changes. It is very important that you review Appendix 2 to see if your state has special requirements.

## 1.3 Legal Disputes

If it comes to our attention that areas of land are in dispute between two or more jurisdictions, we will not make annexations or boundary corrections until the parties come to a written agreement, or there is a documented final court decision regarding the matter/dispute. If you have questions concerning this, please contact the Census Bureau Legal Office at 301-763-2918.

## 1.4 Key Dates for Digital BAS Participants

All changes received by **April 1<sup>st</sup>**, will be reflected in the Population Estimates Program and the American Community Survey. If the Census Bureau receives your updates by **May 31<sup>st</sup>**, they will be included in your BAS materials next year.

To change your method of participation in BAS from Digital BAS to MTPS or paper, you must notify the Census Bureau by February 15<sup>th</sup>. You can contact the Census Bureau by phone at (800) 972-5651 or by email at **geo.bas@census.gov**.

Additionally, to participate in the Digital BAS your entity must meet the following requirements:

1. Your county must have completed the realignment process for the MAF/TIGER Accuracy Improvement Project (MTAIP). The current list of counties that have completed the realignment process is posted on our Web site at: <http://www.census.gov/geo/www/bas/bashome.html>.
2. You must have the ability to edit a Census Bureau shapefile<sup>1</sup> extract of your entity. We require that you update the Census Bureau shapefile with boundary and boundary-related feature changes, rather than submit a shapefile from your own local Geographic Information System (GIS).
3. You must provide information for the BAS point of contact, the person updating the shapefiles, and the highest elected official for your entities.
4. You must provide legal documentation numbers, and effective dates for all legal boundary changes (annexations and deannexations).

If you have any questions or concerns about the participation requirements, please contact the Geography Division Legal Areas Team at 301-763-1099 or email [geo.bas@census.gov](mailto:geo.bas@census.gov).

## **2. MAF/TIGER Accuracy Improvement Project (MTAIP)**

The principle requirement for participating in Digital BAS is that your entity must have completed the MTAIP process. The Census Bureau is spatially improving the street features and boundaries in the MAF/TIGER database. The Census Bureau is using, wherever possible, digital files submitted by state, local, and tribal governments. Many state, local, and tribal governments have a spatial database (GIS) that maintains a level of positional accuracy which meets our minimum accuracy requirements, of 7.6 meters, for improving the location of streets in MAF/TIGER. Once acquired, the Census Bureau evaluates the various layers associated with the file(s) submitted and determines whether the file(s) can be used for the MTAIP process. Because we are improving feature and boundary coordinates based on state, local, and tribal MTAIP submissions, there is a greater likelihood that Digital BAS submissions from governments who have provided spatial files will closely align with improved TIGER making both boundary corrections and legal changes easier to identify. This will also create a solid common geographic foundation for future boundary exchange for governments that have participated in the MTAIP process. If you have additional questions about the MTAIP process, please contact a geographer at your Census Bureau Regional Office. The contact information is located in Appendix 3, on page 32.

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<sup>1</sup> The use of brand names does not represent an endorsement of a company or its products by the U.S. government. Due to the wide use of ESRI products by our partners in the GIS community, and the ubiquitous use of the shapefile format as a medium for GIS data exchange, the Census Bureau is providing this data in shapefile format. You should encounter no problems when importing these shapefiles into your local GIS software. However, if you are using GIS software that does not contain a shapefile translator, please contact the Census Bureau for further instructions (301-763-1099) or e-mail [geo.bas@census.gov](mailto:geo.bas@census.gov).

### 3. Topological Relationships and Spatial Accuracy

The Geography Division of the Census Bureau is responsible for developing geographic applications and executing the geographic and cartographic activities needed to support the Census Bureau in collecting and disseminating census data. For the past twenty years, the Census Bureau's TIGER and Master Address File (MAF) have become the two most critical geographic resources for supporting the Census Bureau in its collection and dissemination of data.

The following section will describe how the Census Bureau uses a topologically integrated system and how this differs from a traditional GIS system using separate layers of data.

#### 3.1 Topological Relationships in the MAF/TIGER Database

For its use in MAF/TIGER, topology can be described as the relationship between different levels of geography. MAF/TIGER is a topologically integrated geographic database in which the topological structures define the location, connection, and relative relationship of streets, rivers, railroads, and other features to each other, and to the numerous geographic entities for which the Census Bureau tabulates data for its censuses and sample surveys. Instead of having a layer for each feature class (i.e. roads, block boundaries, place boundaries, and school district boundaries) all information is stored in one layer or file. Examples 3.1.1 and 3.1.2 provide a visual interpretation of how a file is topologically integrated in MAF/TIGER.



**Example 3.1.1:** This example shows how a road in MAF/TIGER can also represent a block boundary, place boundary and a school district boundary.

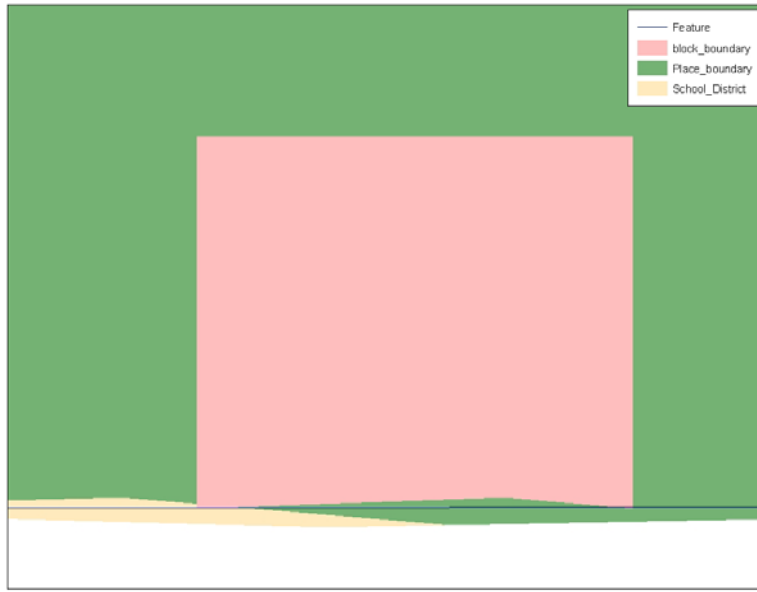


**Example 3.1.2:** This example shows four different feature classes are topologically integrated into one layer. The file is topologically integrated so that the one road represents not only a road, but also a block boundary, place boundary, and a school district boundary.

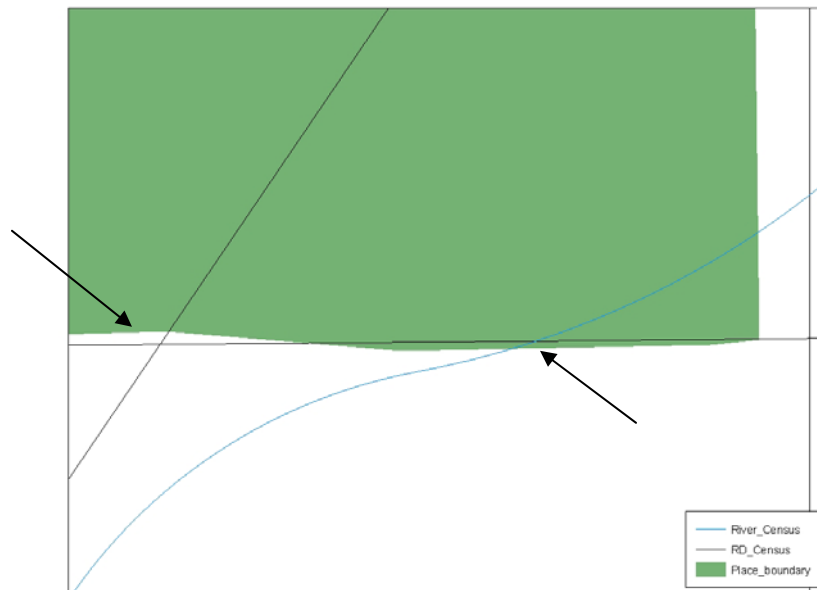
### 3.2 GIS and Spatial Accuracy

In a GIS, feature classes are not often topologically integrated. Instead feature classes stand alone in separate layers that contain a high level of spatial or coordinate accuracy. When overlaying these layers in a GIS one may find that the layers may not be coincident with one another as they are in the MAF/TIGER database. Examples 3.2.1 and 3.2.2 show how files that are not integrated may appear in a GIS when they are overlaid on top of one another.

The spatial differences found between the local GIS file and the Census Bureau's integrated file are often very small (i.e. often less than five or ten feet) and can create boundary-to-feature relationship issues for the Census Bureau. Section 6.6 provides instructions on how to review your digital submission for small spatial boundary corrections, as well as some of the potential consequences of making spatial boundary corrections that dissolve the topological relationships present in the MAF/TIGER database. An example process detailing a suggested method on how to make your boundary changes correctly can be found in Appendix 5.



**Example 3.2.1:** This example shows four different feature classes, each with a high level of spatial accuracy are overlaid, and how the topological relationship is compromised. The block, place, and school district boundaries, which are supposed to be coincident with the road feature, are now offset in several locations.



**Example 3.2.2:** This example depicts a situation where a local GIS place boundary is not coincident (topologically related) with a road feature. Assuming that the Census Bureau boundary is coincident with the road feature, making the changes represented by the arrows would dissolve the topological relationship in MAF/TIGER. Later sections will describe how to review these spatial boundary corrections, as well as discuss some of the consequences of dissolving the relationships in MAF/TIGER.

## 4. Census Bureau Provided Shapefiles

The Census Bureau is providing all Digital BAS participants with entity layers in ESRI shapefile format. The number of polygon-based shapefiles that the Census Bureau sends to each Digital BAS participant depends on the type of entities contained within each county. However, each participant, regardless of the number of geographic entities, receives only one shapefile for the linear feature network for the county. See Table 4.1 for the names of the shapefiles that you will be receiving.

<b><u>Geographic Entity Type</u></b>	<b><u>Shapefile Naming Convention</u></b>
County	bas_2008_county_<ssccc>.shp
Minor Civil Division	bas_2008_mcd_<ssccc>.shp
Incorporated Place	bas_2008_place_<ssccc>.shp
Consolidated City	bas_2008_concity_<ssccc>.shp
Edges (Roads, Rail, Hydro, etc)	bas_2008_edges_<ssccc>.shp
Area Landmarks	bas_2008_arealm_<ssccc>.shp
Point Landmarks	bas_2008_pointlm_<ssccc>.shp
Hydro Area	bas_2008_water_<ssccc>.shp

**Table 4.1**

All shapefiles provided by the Census Bureau are in the following unprojected geographic based coordinate system:

- Geographic Coordinate System – North American Datum 1983 (GCS NAD83)
- Angular Unit: Degree (0.017453292519943299)
- Prime Meridian: Greenwich (0.000000000000000000)
- Datum: D\_North\_American\_1983
- Spheroid: GRS\_1980
- Semi-major Axis: 6378137.0000000000000000
- Semi-minor Axis: 6356752.314140356100000000
- Inverse Flattening: 298.257222101000020000

## 5. Census Bureau Geocoding

Knowledge of two Census Bureau's geocoding methods is critical for your Digital BAS submission. These two methods include using a MAF structure point to geocode an address, and geocoding addresses based on the street centerline (feature matching).

When a MAF structure point is available, the Census will geocode to the location of the structure point which was originally captured using GPS during an earlier Census Bureau operation.



However, if there is no structure point available, the Census Bureau will geocode to the street centerline.

Based on the methods in which the Census Bureau geocodes, it is very important to review your Digital BAS submission to ensure that your changes are topologically related to features where appropriate, and to create and code geographic offsets and corridors wherever necessary.

## **6. Updating the Census Bureau Shapefiles**

The following section will describe how to update the Census Bureau shapefiles to reflect any boundary changes or linear feature changes that have occurred since the last BAS survey. There will also be a brief discussion on the procedures that should be followed to submit boundary changes and associated documentation. An example process can be found in Appendix 5 to supplement the brief discussion on the procedures to submit changes and documentation. Furthermore, there will be a short section on steps that should be taken to review your digital file before submitting it to the Census Bureau.

If the Census Bureau has any problems processing the submitted boundary or feature file, you will receive a feedback document, by email, requesting clarification of the issue. If we cannot clarify the problem prior to our project deadline, your updates will not be incorporated into MAF/TIGER. We will continue to work with you to try and resolve these issues before the next BAS cycle.

### **6.1 General File Setup Guidelines**

When you receive your shapefile, follow these guidelines before beginning actual updates:

- Open the CD to verify that it contains the correct shapefiles for the entity that you will be updating.
- Copy the shapefiles into a directory on your server/hard drive.
- Open the shapefiles in a GIS.

### **6.2 Changing Our Coordinate System to Match Yours**

Our files are in GCS NAD83 format. Please feel free to project these files into your local coordinate system/projection. Most GIS software packages contain projection wizards, or something similar, that allows the user to transform file coordinate systems and projections. For example, if your office uses ArcView to update files, please activate and utilize ArcView's 'Projection Utility Wizard' extension. If using ArcGIS, please use its 'Projection Utilities' in ArcToolbox. MAF/TIGER shapefile extracts contain defined projection information in the \*.PRJ file. Both ArcView and ArcGIS access the \*.PRJ file for projection information; therefore, there is no need for you to define these parameters before changing the file coordinate systems.

After completing your updates, you may submit the boundary shapefile using your local coordinate system/projection provided that the shapefile's coordinate system contains a defined projection file (i.e., \*.PRJ file) and spatial reference materials (i.e., metadata).

## 6.3 Boundary Changes

In order to update MAF/TIGER, a separate change polygon layer must be created for each updated entity type (i.e., county, MCD, and place). The change polygons must be created in relation to the current MAF/TIGER boundary.

Appendix 5 provides an example process for creating annexation, deannexation, boundary correction, new entity, geographic corridor, and geographic offset change polygons. The Census Bureau also requests that you review any boundary changes (change polygons) that you create. Section 6.6 contains information on what to look for when reviewing your change polygons.

If a boundary update crosses into a new county and additional shapefiles are needed, please contact the the Census Bureau’s geographic Legal Areas Team at 301-763-1099 or e-mail [geo.bas@census.gov](mailto:geo.bas@census.gov).

### 6.3.1 Annexations and Deannexations

The Census Bureau will accept annexations and deannexations from counties, MCDs, and incorporated places. Individual change polygons must be created in relation to the MAF/TIGER database. Each annexation or deannexation change polygon must have the required attributes and corresponding change type populated, as seen in Table 6.3.1.1. The Census Bureau will snap any annexation or deannexation to a MAF/TIGER feature when it exists within thirty feet of that feature.

	NAME	CHNG_TYPE	EFF_DATE	DOCU (Not Required in GA)	AREA (Required in GA)	RELATE
Annexation	X	A	X	X	Georgia	
Deannexation	X	D	X	X	Georgia	

Table 6.3.1.1

### 6.3.2 Boundary Corrections

The Census Bureau will also accept specific boundary corrections from counties, MCDs, and incorporated places. As with annexations and deannexations, individual change polygons must be created for each boundary correction that is made. Each boundary correction must also have the required attributes and corresponding change type populated, as seen in Table 6.3.2.1.

	NAME	CHNG_TYPE	EFF_DATE	DOCU (Not Required in GA)	AREA (Required in GA)	RELATE
Boundary Correction (Add Area)	X	B				IN
Boundary Correction (Remove Area)	X	B				OUT

Table 6.3.2.1

Because the Census Bureau uses a topologically integrated database, not all types of boundary corrections can be processed for inclusion into MAF/TIGER. The list below provides an outline of the boundary corrections that we will and will not be able to accept through Digital BAS.

The Census Bureau **will** accept boundary corrections...

- in situations where the existing boundary has been digitized incorrectly or appears in the incorrect location due to other Census Bureau processes.
- where the overall shape of the geographic entity is maintained, and no feature-to-boundary relationships are dissolved.

The Census Bureau **will not** accept boundary corrections...

- along county boundaries unless there is a written agreement between the two counties that documents the correct location of the boundary.
- between adjacent incorporated places or adjacent MCDs unless the county submitting the changes is part of a consolidated county agreement or there is a written agreement between the two incorporated places or MCDs.
- that dissolves boundary-to-feature relationships (i.e. roads, rivers, railroads, etc.) if the difference is less than thirty feet.
- which are greater than one square mile. These boundary corrections may be part of annexations which were never reported to the Census Bureau. If so, an effective date and legal documentation numbers should be provided.
- that have a width of less than thirty feet.

Please remember that the Census Bureau will snap any boundary correction to a MAF/TIGER feature when it exists within thirty feet of that feature.

### 6.3.3 New Incorporations

County participant may submit new incorporations (incorporated places and minor civil divisions) through Digital BAS. As with other change types, an individual change polygon must be created for each new incorporation. Each change polygon must have the required attributes and corresponding change type populated, as seen in Table 6.3.3.1.

	NAME	CHNG_TYPE	EFF_DATE	DOCU (Not Required in GA)	AREA (Required in GA)	RELATE
New Incorporation	X	E	X	X		

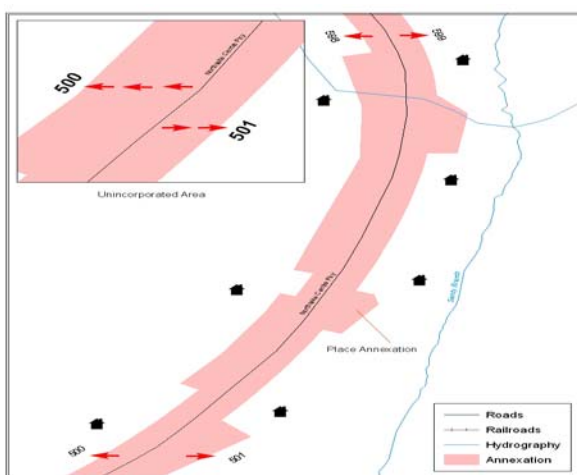
**Table 6.3.3.1**

Please contact the BAS unit at 1-800-972-5651 for the required documentation for new incorporations.

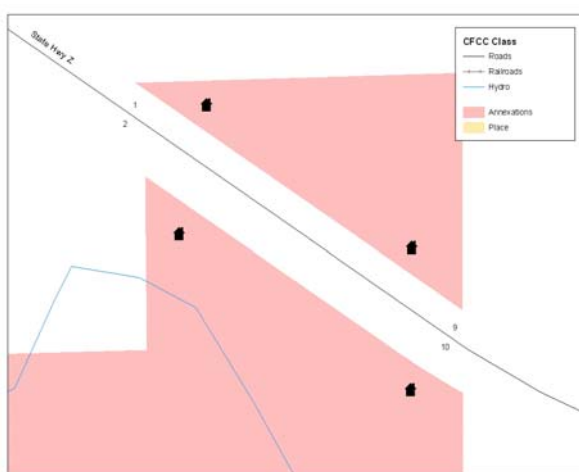
### 6.3.4 Geographic Corridors

The Census Bureau geocodes addresses based on the street centerline. If the geocoding of these addresses would result in the population being assigned to the incorrect geographic entity, we recommend the creation of a geographic corridor.

A **geographic corridor** is an area that includes only the road right-of-way and does not contain any structures addressed to either side of the street. Example 6.3.4.1 shows a corridor being created where the incorporated place owns the right-of-ways but the housing units are not included in the incorporated place. Example 6.3.4.2 shows that unincorporated area owns the right-of-way, while the housing units are included in the incorporated place. In both examples the incorporated place is shown in red.



Example 6.3.4.1



Example 6.3.4.2

As with all other types of geographic changes, individual change polygons must be created for each geographic corridor that is created. Each geographic corridor change polygon must have the required attributes populated and corresponding change type, as seen in Table 6.3.4.1.

	NAME	CHNG_TYPE	EFF_DATE	DOCU (Not Required in GA)	AREA (Required in GA)	RELATE
Geographic Corridor	X	C				Distance

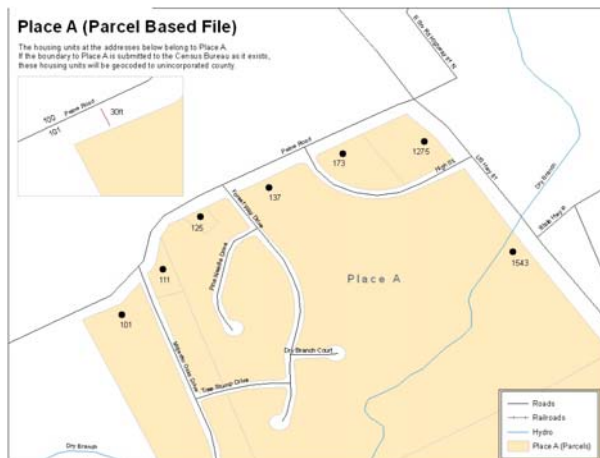
Table 6.3.4.1

### 6.3.5 Geographic Offsets

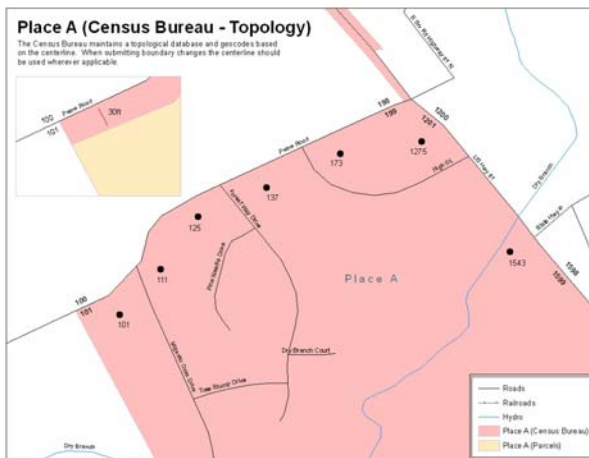
A **geographic offset** is an area claimed by a geographic entity that is only on one side of the road and does not include structures addressed to that side of the road.

The Census Bureau is aware that many governments base their legal boundaries on cadastral (parcel-based) right-of-way mapping. Because our maps are based on spatial data that is topologically integrated, it makes maintenance of geographic offsets inefficient. Snapping your

entity boundary to the centerline wherever applicable will also help to establish more accurate population counts. Example 6.3.5.1 depicts a cadastral (parcel-based) boundary map and Example 6.3.5.2 shows how the boundary should be reflected when it is sent to the Census Bureau.



**Example 6.3.5.1**



**Example 6.3.5.2**

Ultimately, if you do prefer to create geographic offsets you must create individual change polygons to represent each geographic offset. Each geographic offset change polygon must have the required attributes and corresponding change type populated, as seen in Table 6.3.5.1.

	NAME	CHNG_TYPE	EFF_DATE	DOCU (Not Required in GA)	AREA (Required in GA)	RELATE
Geographic Offset	X	F				Distance

**Table 6.3.5.1**

## 6.4 Linear Feature Updates

### 6.4.1 Adding, Deleting, Renaming, and Recoding Linear Features

If you have reviewed your features using our linear feature network, and have determined that the Census Bureau needs to add, remove, rename or recode a linear feature you may submit your modifications in a separate linear feature update layer. Each linear feature update must have the required attributes and corresponding change type populated, as seen in Table 6.4.1.1

	CHNG_TYPE	FENAME	MTFCC	LTOADD	RTOADD	LFROMADD	RFROMADD
Add Feature	AL	X	X				
Delete Feature	DL						
Rename Feature	CA	X					
Recode Feature	CA		X				

**Table 6.4.1.1**

A list of the new MTFCC codes can be found at:  
[http://www.census.gov/geo/www/tiger/cfcc\\_to\\_mtfcc.xls](http://www.census.gov/geo/www/tiger/cfcc_to_mtfcc.xls)

The Census Bureau will accept and process any linear features that establish or maintain linear feature-to-boundary relationships (i.e. any linear feature that is coincident boundary). In addition, we will also accept feature updates which stand independent of boundaries (i.e. new subdivisions, etc.).

Example 6.4.1.2 displays the different type of linear feature updates that can be made to update the Census Bureau's "Edges" layer.

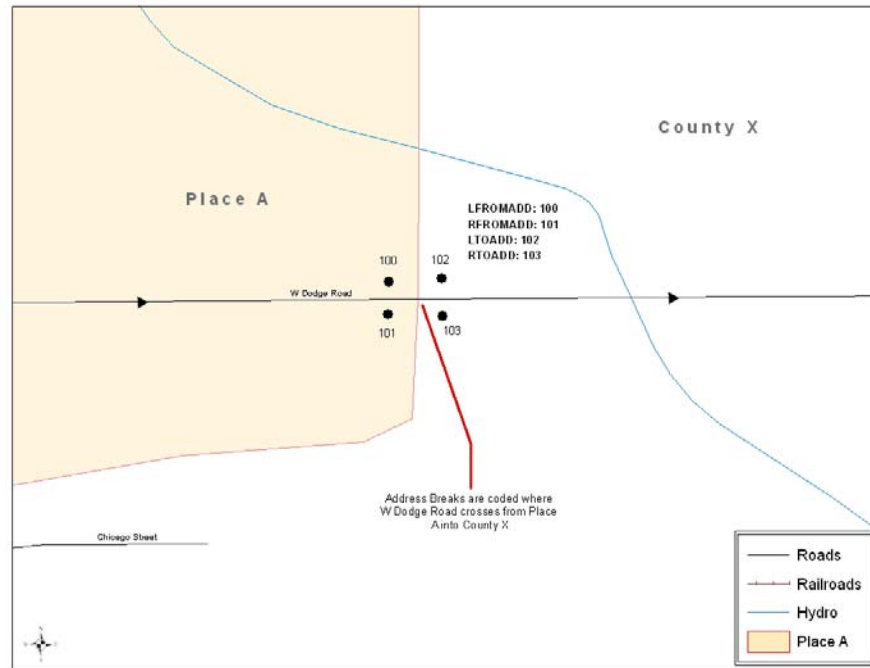


**Example 6.4.1.2:** This example shows new road features being added or modified from the Census Bureau's 'Edges' layer. Please create a separate layer with all features that were added, deleted, renamed or recoded.

## 6.4.2 Address Range Break Updates

An address range break is a notation indicating the addresses that fall within the boundaries of a government. This information will not be displayed on your map but should be inserted when you move a boundary that intersects a street, or you add a street that intersects a boundary. This will help the Census Bureau to assign the correct addresses to your jurisdiction.

Address breaks may be submitted to the Census Bureau as part of the linear feature update layer. See Example 6.4.2.1 for more information on what an address break would look like. As with other linear feature updates, address breaks must have the required attributes and corresponding change type populated, as seen in Table 6.4.2.2



**Example 6.4.1.2:** This example depicts where a participant would record an address break. In the Census Bureau’s ‘Edges’ layer please be sure to fill in the correct attribute fields to show the location of the address range break. This would include the CHNG\_TYPE, LTOADD, RTOADD, LFROMADD, and RFROMADD fields.

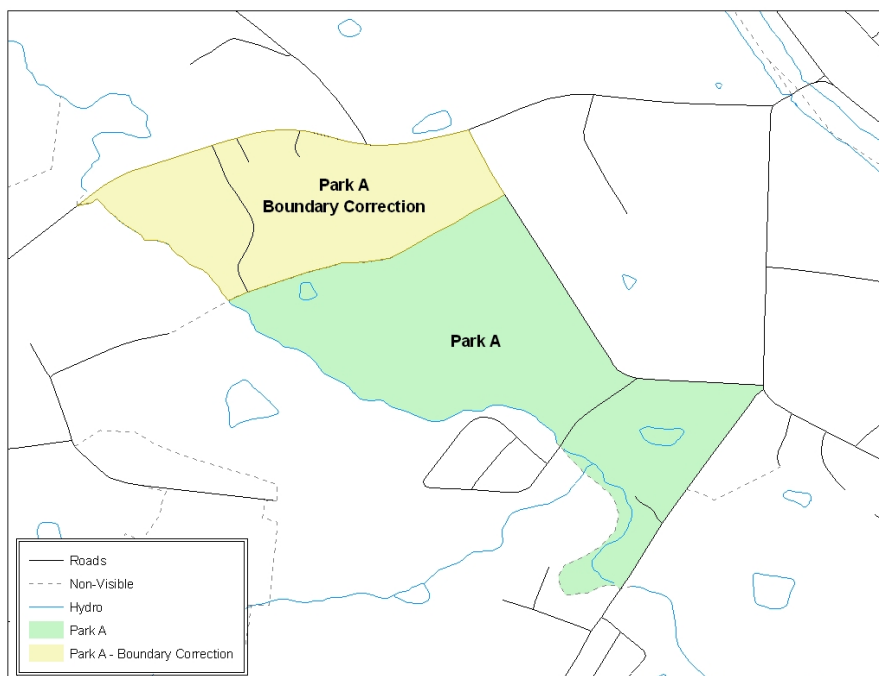
	CHNG_TYPE	FENAME	MTFCC	LTOADD	RTOADD	LFROMADD	RFROMADD
Address Breaks	CA			X	X	X	X

**Table 6.4.2.2**

## 6.5 Area Landmarks, Hydro Areas, and Point Landmarks

### 6.5.1 Area Landmarks / Hydro Area Updates

Area landmarks and hydro areas are updated in a similar manner to legal boundary changes (i.e. annexations, deannexations, etc.). However, area landmarks and hydro areas are not legal entities. In order to submit area landmark and hydro area updates please create a separate change polygon layer. Updates that can be made to area landmarks and hydro areas include: boundary corrections (adding and removing area), creating a new area landmark or hydro area, removing an area landmark or hydro area, or changing the name. Refer to Example 6.5.1.1 for what a sample boundary correction to an area landmark would look like.



**Example 6.5.1.1:** This example shows an example boundary correction to Park A. Please refer to the example process in Appendix 5 for more information on how to create change polygons for area landmark and hydro areas. *Note: While the example process in Appendix 5 refers to legal boundary changes the process used to create the change polygons for area landmarks and hydro areas is the same.*

Each area landmark or hydro area update must have the required attributes and corresponding change type populated, as seen in Table 6.5.1.2.

	FULLNAME	CHNG_TYPE	RELATE
Boundary Correction (Add Area)	X	B	IN
Boundary Correction (Remove Area)	X	B	OUT
Delete Landmark		D	
Change Landmark Name	X	G	
New Landmark	X	E	

**Table 6.5.1.2**

The example process in Appendix 5 will provide you with the information on how to create change polygons. While the sample process is written for legal boundary changes, the same methods apply for creating change polygons for area landmarks and hydro areas.

## 6.5.2 Point Landmark Updates

Updates to point landmarks may also be made. In order to submit point landmark updates, please create a separate point landmark update layer. The updates to point landmarks include:



adding a new point landmark, deleting an existing point landmark, and renaming a point landmark. Each point landmark update must have the required attributes and corresponding change type populated, as seen in Table 6.5.2.1

	FULLNAME	CHNG_TYPE	MTFCC
New Point Landmark	X	E	X
Delete Point Landmark		D	
Change Name	X	G	

**Table 6.5.2.1**

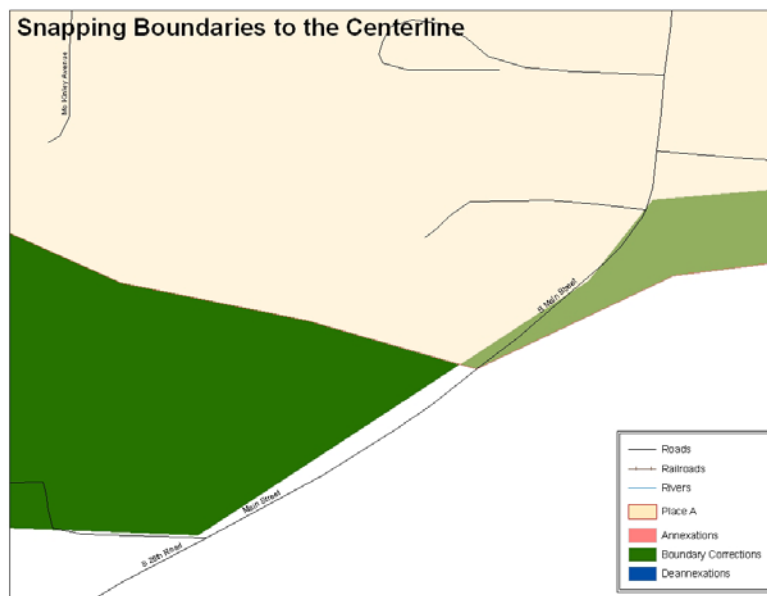
## **6.6 Reviewing Changes to the Census Bureau Shapefiles**

A comprehensive review of each change polygon and feature update layer is an important aspect of your Digital BAS submission. Any annexation, deannexation, or boundary correction must be reviewed to ensure that it is an intentional change. This section will cover critical items that are important to that review.

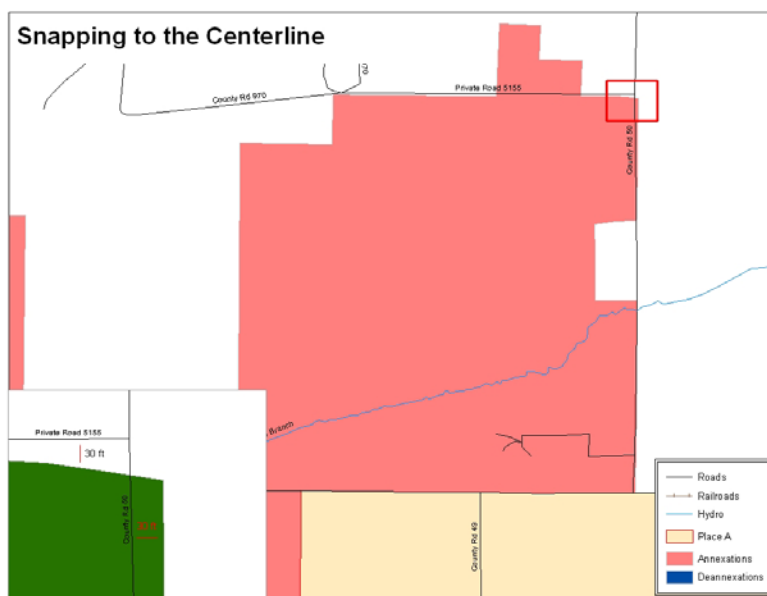
### *6.6.1 Boundary-to-Feature Relationships*

Each annexation, deannexation, and boundary correction change polygon should be reviewed to determine if the correct boundary-to-feature relationships are being created or maintained. The Census Bureau is aware that many governments base their legal boundaries on cadastral (parcel-based) right-of-way mapping; however we base our maps on spatial data that is topologically integrated. Therefore we encourage you to snap boundaries to street centerlines (rivers, railroads, etc.) wherever applicable. This will help to establish a more accurate population count for your entity.

The following examples show situations where the boundary changes should be snapped to existing linear features. As a reminder, the Census Bureau will snap any boundary change that is created within thirty feet of an existing linear feature to that feature.



**Example 6.6.1.1:** Both the boundary correction adding area and the boundary correction removing area are not snapped to existing linear features in the MAF/TIGER database. Both boundary corrections should be snapped to the centerline or population may be assigned to the incorrect entity.



**Example 6.6.1.2:** This is another example of an annexation that is created without snapping to the existing centerline in the MAF/TIGER database. The boundary of the annexation should be snapped to the centerline otherwise the population may be assigned to the incorrect entity.

The Census Bureau will not accept “spatial” boundary corrections that dissolve the current relationship with an existing boundary and linear feature. Any boundary correction that creates thirty foot or less gap or overlap between the existing linear feature and boundary will not be able to be incorporated into the MAF/TIGER database. The examples below display the types of “spatial” boundary corrections that will not be accepted.



**Example 6.6.1.3:** In the image above the participant has created very small “spatial” boundary corrections that dissolve the relationship with the river. These boundary corrections will not be incorporated in the MAF/TIGER database.

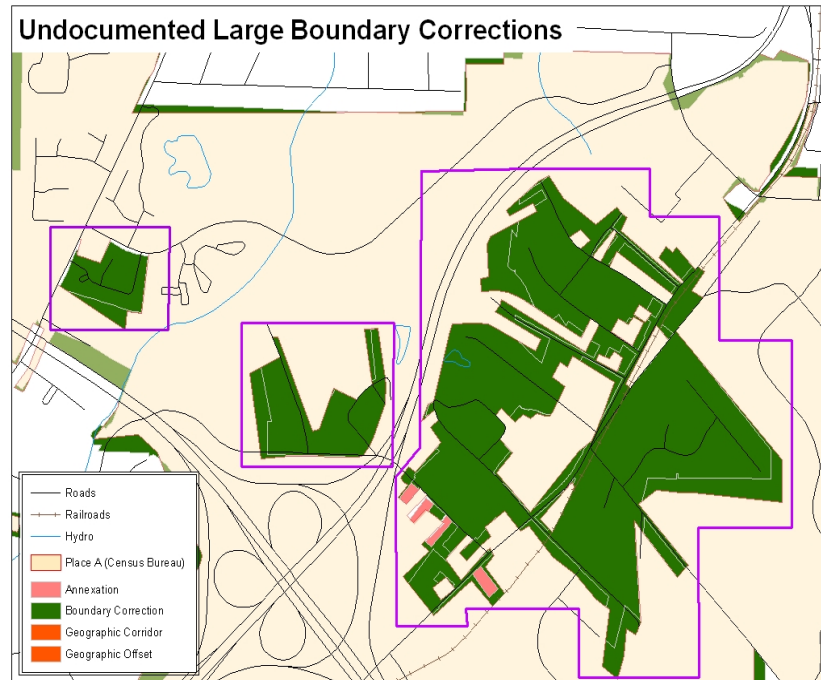


**Example 6.6.1.4:** In the image above the participant has created very small “spatial” boundary corrections that are dissolving the boundary-to-feature relationship with multiple streets. Incorporating these changes would affect the population counts for your entity. Therefore the Census Bureau will not accept these small “spatial” boundary corrections.

## 6.6.2 Large Boundary Corrections

The Census Bureau will not accept large boundary corrections to an entity without the appropriate legal documentation numbers and effective dates. Often times these large boundary corrections may be part of a legal boundary change that occurred in the past and was never

reported to the Census Bureau. However, we still do require that you submit the appropriate legal documentation number and effective date so that we may incorporate your change into the MAF/TIGER database. See Example 6.6.2.1 for an example of a large boundary correction that we will not be able to accept without the appropriate documentation.



**Example 6.6.2.1:** Without the appropriate documentation we will not accept large boundary corrections like the ones highlighted in the above image.

Please note that there may be a few instances when large boundary corrections do need to be made as a result of incorrect digitizing or where the boundary appears in the incorrect location due to other Census Bureau processes such as MTAIP which could have rubber sheeted your boundaries.

### 6.6.3 Required Attribute Information Included

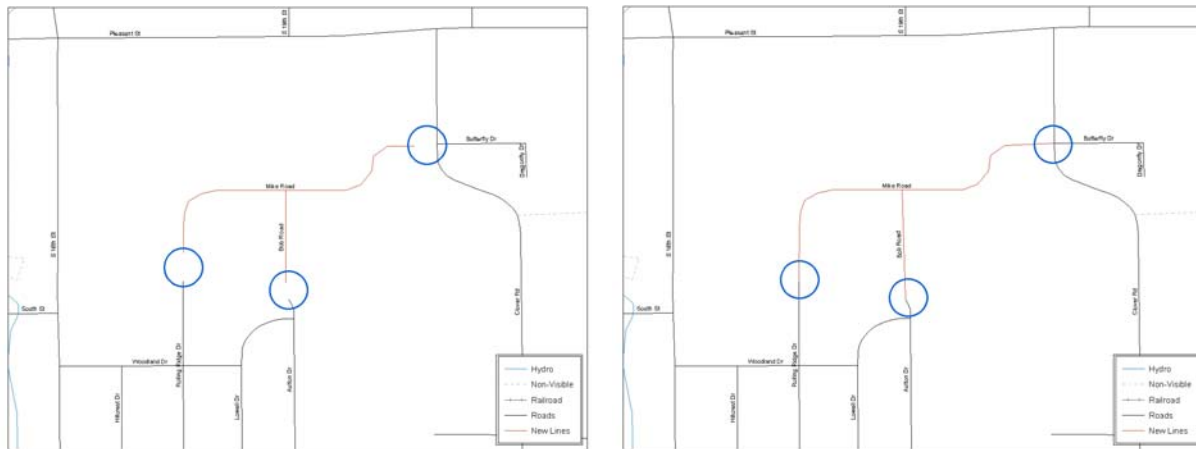
It is important that each change polygon is reviewed to determine that the correct attribute information is included. Without the correct attribute information we will be unable to process your file and incorporate the changes into the MAF/TIGER database. Reference Section 6.3 for the required attribute information and corresponding change type codes for each type of update that you make.

### 6.6.4 Appropriate Metadata Included (Projection Information)

It is important that the appropriate projection information in the metadata is included. Each update layer submitted must also contain a \*.prj file so that the Census Bureau can convert the projection back to GCS\_NAD83 when necessary. This is critical for us to be able to process the file and incorporate the updates into the MAF/TIGER database.

### 6.6.5 Linear Feature Updates

The Census Bureau also asks you to review your feature changes to ensure that all changes align with the features currently in the MAF/TIGER database. As a reminder, the Census Bureau has improved the feature network using a locally provided source to assure connectivity and topology through MTAIP (See Section 2). If your linear feature changes do not align with current MAF/TIGER linear features, the Census Bureau may not be able to incorporate the linear feature updates that you have submitted. Example 6.6.3.1 shows something you might look for when reviewing your linear feature updates.



**Example 6.6.3.1:** The image on the left depicts new road features that were added to the existing feature network, but do not connect to existing road features. The image on the right shows the correction and how the new roads now connect to the existing road features.

### 6.6.6 Additional Review Information

As documented in Section 6.3, the Census Bureau will not make any boundary change that affects an adjacent legal entity without the appropriate documentation. We ask that you please review any change polygon that affects an adjacent entity to determine if this is an intentional, legal change.

It is important to emphasize that the Census Bureau will snap any annexation, deannexation, or boundary correction to a MAF/TIGER feature when it exists within thirty feet of that feature. This helps to maintain the boundary-to-feature relationships in MAF/TIGER and will ensure correct housing tabulation counts for your entity.

## 6.7 Submitting Metadata with the Digital File

Metadata that describes the data content, coordinate system/projection, author, source, and other characteristics of GIS files is critical for Census Bureau staff to efficiently and accurately process files for Digital BAS. The Census Bureau requires that a metadata text file accompany every GIS file and layer submitted.

The Federal Geographic Data Committee's (FGDC) Content Standard for Digital Spatial Metadata provides a national standard that enables the data-sharing public to easily locate critical information about a file and ensure that no critical information is omitted inadvertently when creating metadata. For this reason, the Census Bureau requests that metadata submitted as part of Digital BAS is submitted using this standard. For information about the FGDC and its geospatial metadata standards, please visit the following site:  
<http://www.fgdc.gov/metadata/metadata.html>

The Census Bureau requires that the following sections of the FGDC metadata form be completed:

- Citation (information about the originator, publication date, title edition, and other publications or information)
- Description (a section that contains an abstract describing your data set)
- Time Period of Content (a section that describes the vintage of the data)
- Spatial Domain (information about the bounding coordinates)
- Point of Contact (general contact information for the BAS contact)
- Data Quality Information (information about attribute accuracy)
- Spatial Reference Information (a section on the coordinate system / projection of the data set)
- Entity and Attribute Information (a section that describes the contents of your table)

To help you fulfill the requirement of filling out and submitting metadata, the Census Bureau suggests visiting the USGS Web site. This site contains useful information about the FGDC compliant metadata, from which one can read about metadata frequently asked questions, view FGDC metadata examples, and connect to other FGDC-related Web pages. For this information please visit:

<http://geology.usgs.gov/tools/metadata>

Furthermore, if you are using ArcInfo, the FGDC link related to metadata creation tools contains a useful Arc Macro Language (AML) (i.e., fgdcmeta.aml) that when executed, completes most of the aforementioned required sections of the metadata form automatically. This AML is a product of the Illinois State Geological Survey.

<http://www.FGDC.gov/metadata/toollist/fgdcmeta.html>

*Note: ESRI's ArcCatalog also has an embedded program that uses the FGDC standard in its creation of geospatial metadata.*

## **6.8 Submitting Digital Data**

The Census Bureau requires that the participant submit at least two shapefiles with the potential of more. These layers are described below:

- *Change Polygon Layers (County, Minor Civil Division, Incorporated Place, and Consolidated City)*
  - These layers consist of the changes that you would like the Census Bureau to make to your entity(s).
  - A layer of change polygons should be created for each level of geography that changes are being created for.
- *Whole Modified Entity Layer (County, Minor Civil Division, Incorporated Place, and Consolidated City)*
  - These layers should only contain the complete and current boundary for the entity being updated.
  - A whole entity layer should be created for each level of geography that changes are being created for.
- *Feature Update Layer (required only if there are feature additions, deletions, name changes, recodes, or address range breaks)*
  - If you have linear feature updates that you would like the Census Bureau to make, include a linear feature update layer with only the feature segments that you would like us to adjust.
- *Area / Hydro Landmark Layer (required only if there are area / hydro landmark updates)*
  - If you have area landmarks updates that you would like the Census Bureau to make, please include an area landmark / hydro area update layer with only the area landmark changes that you would like us to update.
- *Point Landmark Layer (required only if there are point landmark updates)*
  - If you have point landmark updates that you would like the Census Bureau to make, please include a point landmark update layer with only the point landmark changes that you would like us to update.

#### 6.8.1 County Submissions and Individual Entity Submissions (Change Polygons)

Table 6.8.1.1 provides the change polygon naming conventions for county submissions, county subdivisions, incorporated places, and consolidated cities.

Participant	Changes Submitted For:	Shapefile Naming Conventions
<i>County</i>	County	bas<yy>_<basID>_changes
<i>County</i>	Minor Civil Division	bas<yy>_<basID>_changes_cousub
<i>County</i>	Incorporated Place	bas<yy>_<basID>_changes_inplace
<i>Minor Civil Division</i>	Minor Civil Division	bas<yy>_<basID>_changes
<i>Incorporated Place</i>	Incorporated Place	bas<yy>_<basID>_changes
<i>Consolidated City</i>	Consolidated City	bas<yy>_<basID>_changes

**Table 6.8.1.1:** The table above displays the change polygons naming conventions for all participants listed above. <yy> represents the BAS year, and <basID> represents your BAS entity ID, which can be found on the data CD.

### 6.8.2 County Submissions and Individual Entity Submissions (Whole Entity Polygons)

Table 6.8.2.1 provides the whole entity polygon naming conventions for consolidated county submissions, county subdivisions, incorporated places, and consolidated cities.

Participant:	Changes Submitted For:	Shapefile Naming Conventions
County	County	bas<yy>_<basID>_WholeEntity
County	Minor Civil Division	bas<yy>_<basID>_WholeEntity_cousub
County	Incorporated Place	bas<yy>_<basID>_WholeEntity_incplace
Minor Civil Division	Minor Civil Division	bas<yy>_<basID>_WholeEntity
Incorporated Place	Incorporated Place	bas<yy>_<basID>_WholeEntity
Consolidated City	Consolidated City	bas<yy>_<basID>_WholeEntity

**Table 6.8.2.1:** The table above displays the whole entity polygon naming conventions for all participants listed above. <yy> represents the BAS year, and <basID> represents your BAS entity ID, which can be found on the data CD.

### 6.8.3 Linear Feature, Area Landmark / Hydro Area, and Point Landmark Updates (Not Required)

Table 6.8.3.1 provides the update layer naming conventions for the edges, area landmark, and point landmark update layer.

Participant:	Changes Submitted For:	Shapefile Naming Conventions
All Participants	Edges	bas<yy>_<basID>_LN_changes
All Participants	Area / Hydro Landmarks	bas<yy>_<basID>_Alndk_Changes
All Participants	Pont Landmarks	bas<yy>_<basID>_Plndk_Changes

**Table 6.8.3.1:** The table above displays the naming conventions for the edges, area landmark, and point landmark update layers. <yy> represents the BAS year, and <basID> represents your BAS entity ID, which can be found on the data CD.

### 6.8.4 Compressing the Digital Files

Please compress all updates materials including: change polygon shapefiles, whole entity shapefiles, linear feature updates, and landmark updates into a single ZIP formatted file named the following:



<b>Participant:</b>	<b>Shapefile Naming Conventions</b>
<i>County</i>	bas<yy>_<basID>_return
<i>Minor Civil Division</i>	bas<yy>_<basID>_return
<i>Incorporated Place</i>	bas<yy>_<basID>_return
<i>Consolidated City</i>	bas<yy>_<basID>_return

**Table 6.8.4.1:** The table above displays the naming conventions for the edges, area landmark, and point landmark update layers. <yy> represents the BAS year, and <basID> represents your BAS entity ID, which can be found on the data CD.

#### 6.8.5 Submitting Digital Files via File Transfer Protocol (FTP)

We request that you submit your Digital BAS response through the Census Bureau’s “Send A File” FTP utility. The “Send A File” utility is located at:

<http://www2.census.gov/cgi-bin/basupload>

**Source Information** >> *File to Send:* >> *Browse*

Browse to the location which your file is stored to submit to the Census Bureau.

**Target Information** >> *Directory to Receive File:*

Please type */geo/Digital\_BAS/* in the Directory to Receive File field so that your file will be stored in the correct location on the FTP site.

**Notify by Email** >> *Census Bureau Employee’s E-Mail Address:*

Please type [geo.bas@census.gov](mailto:geo.bas@census.gov) so that the Legal Areas Team is notified whenever a file is submitted to the FTP site. We will notify you that we have received your file.

Enter the *Verification Code* and click the *Upload* button to FTP your Digital BAS file to the Census Bureau. If you have any questions on the “Send A File” FTP utility please contact the Legal Areas Team at 301-763-1099 or email [geo.bas@census.gov](mailto:geo.bas@census.gov).

**Note: We request that you do not submit Local Update of Census Addresses (LUCA) files to the FTP site.**

#### 6.8.6 Additional Information

The Census Bureau recommends using FIPS codes to identify entities such as counties, minor civil divisions, and incorporated places. Using a standard coding scheme facilitates the digital exchange of data.

These codes can be obtained at: <http://geonames.usgs.gov/fips55.html>

If you have any questions or problems, please contact the Legal Areas Team at 301-763-1099 or email [geo.bas@census.gov](mailto:geo.bas@census.gov).

## **Appendix 1: Paperwork Reduction Project**

The U.S. Census Bureau estimates that the BAS review will take most respondents from 1 to 6 hours to complete. This includes the time needed to read the instructions, assemble materials, organize and review the information, and report any needed changes. This estimate is based on 80 percent of all areas having few or no changes. However, for areas with many changes, it may take 20 hours or longer to complete the survey. Please send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to:

Paperwork Project 0607-0151  
U.S. Census Bureau  
4600 Silver Hill Road  
Room 3K138  
Washington, DC 20233

Or you may e-mail comments to:

[paperwork@census.gov](mailto:paperwork@census.gov)

Note: Use “Paperwork Project 0607-0151” as the subject.

Please include a copy of your message addressed to:

[geo.bas@census.gov](mailto:geo.bas@census.gov).

## **Appendix 2: State Specific Notes**

The following states have state specific notes. Please review them before completing your updates. If there are any updates to this section they will be posted on the BAS website (insert).

- 1. Alaska**
- 2. California**
- 3. Georgia**
- 4. Kentucky**
- 5. Louisiana**
- 6. Michigan**
- 7. Minnesota**
- 8. New York**
- 9. Puerto Rico**
- 10. Virginia**
- 11. West Virginia**
- 12. Wisconsin**

### **1. Alaska**

Alaska Statutes (AS 29 and AS 44) stipulate the Local Boundary Commission be involved in the development of all boundary changes to incorporated places including annexations, incorporations, or dissolutions. The Local Boundary Commission within the Alaska Department of Commerce, Community and Economic Development has designated the Alaska Department of Labor and Workforce Development as the agency to provide the Census Bureau with boundary changes through the annual Boundary and Annexation Survey.

The Census Bureau and the Alaska Department of Labor and Workforce Development are working together to consolidate the updates of legal boundaries in Alaska. This ensures the Census Bureau will obtain the boundary information it needs from a single source.

Please note that any governmental boundary changes, incorporations, dissolutions, and mergers for your borough or city effective on or before January 1<sup>st</sup>, will be submitted by the Alaska Department of Labor and Workforce Development.

If you have any questions or concerns regarding legal boundaries for your borough or city you may contact Ingrid Zaruba at 907-465-2439 or by email at: [ingrid\\_zaruba@labor.state.ak.us](mailto:ingrid_zaruba@labor.state.ak.us)

### **2. California**

The California State Board of Equalization serves as the Certifying Official for all local governments in California. The Board certifies to the Census Bureau the legality of boundary changes made by California municipalities. To assist them, please enter the final resolution number adopted by the city council as approved by the Local Agency Formation Commission

(LAFCO) for each boundary change in the Authorization Number field on the BAS Entity Update Form. Please do not report the resolution number that initiated the action. Also, please enter the date on the certificate of completion issued by the LAFCO in the Effective Date field on the BAS Entity Update Form.

### **3. Georgia**

The Georgia Code stipulates that all annexations and deannexations to incorporated places be reported to the Georgia Department of Community Affairs. The Census Bureau has an ongoing working relationship with this state agency to conduct the annual Boundary and Annexation Survey. A list of entities that reported boundary changes to the Georgia Department of Community Affairs is provided to the Census Bureau each year. The Census Bureau uses this list to determine who should get a BAS package.

Please ensure that all annexation and deannexation information has been reported to the Department of Community Affairs, per the Georgia Code. The Georgia Code is available at <http://www.legis.state.ga.us/>. You may report your boundary changes to the Department of Community Affairs online or print a boundary change report form at <http://www.georgiaplanning.com/annex.htm>. Printed forms can be mailed to Annexation Reports- Georgia Department of Community Affairs- 60 Executive Park South, NE- Atlanta, Georgia- 30329-2231.

The Department of Community Affairs (DCA) serves as the Certifying Official for all local governments in Georgia. DCA certifies to the Census Bureau the legality of boundary changes made by Georgia municipalities. To assist them, please enter the final resolution or ordinance number adopted by the city for each boundary change, as it was reported to DCA. If no resolution or ordinance number was assigned by your city then use the DCA-ID number assigned by DCA to your annexation report. Enter the number in the Authorization Number field on the BAS Entity Update Form. Also, please enter the effective date, as officially recorded by DCA; into the Effective Date field on the same form. The DCA-ID number and official effective date for annexations can be obtained at <http://www.GeorgiaPlanning.com/annex.htm>. If you have any concerns about this data, contact Terry Jackson at 404-679-4946.

The Census Bureau has also entered into a cooperative agreement with the State of Georgia Municipal Association to provide two sets of maps to each government surveyed through the BAS. Please return one set of maps to the Census Bureau; the other set can be marked and retained for your records.

### **4. Kentucky**

The Kentucky Revised Statutes stipulate that all boundary changes to incorporated places within Kentucky be reported to the office of the Secretary of State. Reports of boundary changes are forwarded by the Secretary of State to the Division of Geographic Information for mapping. The Census Bureau has an ongoing working relationship with this state agency to conduct our annual Boundary and Annexation Survey. The Kentucky Division of Geographic Information provides a list of incorporated places, which reported boundary

changes, to the Census Bureau each year. The Census Bureau uses this list to determine who should get a BAS package.

Please ensure that boundary change information has been reported to the Office of the Secretary of State, per the Kentucky Revised Statutes. The Kentucky Revised Statutes are available at <http://www.lrc.ky.gov/statrev/frontpg.htm>. All boundary changes should be submitted to The Land Office Division, Secretary of State, Room T40, Capitol Annex, 700 Capital Ave., Frankfort, KY, 40601.

If you would like to review the data, which the Kentucky Division of Geographic Information has for your entity, please visit <http://kygeonet.ky.gov/>. If you have any concerns about this data, contact Kim Anness at 502-564-1450.

## **5. Louisiana**

The MCD used in Louisiana for Census Bureau data tabulations is the parish governing authority district. These districts are the same as the Police Jury Districts or the Parish Council Districts used for the election of members of the police jury or parish council. Please review the boundaries of the parish subdivisions in your parish carefully to ensure that the names and boundaries conform to these districts. Do not report election precincts or election districts or any other areas that are not used in apportioning the representatives of the police jury or parish council. If you have a question about which MCDs you are to report, please contact:

Bill Blair  
Director of Demographic Services (House and Senate)  
P.O. Box 44486  
Baton Rouge, LA 70804  
Telephone: 225-342-2591  
Fax: 225-342-0768  
E-mail: [blairb@legis.state.la.us](mailto:blairb@legis.state.la.us)

If you report changes or corrections to the districts in your parish, please ensure that you also report the effective date of the change.

## **6. Michigan**

Michigan law stipulates that all boundary changes to incorporated places and minor civil divisions within Michigan be reported to the office of the Secretary of State. The Census Bureau has an ongoing working relationship with a state agency to conduct our annual Boundary and Annexation Survey. The state agency provides a list of incorporated places and minor civil divisions, which reported boundary changes, to the Census Bureau each year. The Census Bureau uses this list to determine who should get a BAS package.

## **7. Minnesota**

Minnesota statutes stipulate that all boundary changes to incorporated places and minor civil divisions within Minnesota be reported to the office of Strategic and Long-Range Planning.

The Census Bureau has an ongoing working relationship with a state agency to conduct our annual Boundary and Annexation Survey. The state agency provides a list of incorporated places and minor civil divisions, which reported boundary changes, to the Census Bureau each year. The Census Bureau uses this list to determine who should get a BAS package.

## **8. New York**

The New York Department of State, Division of Corporations and State Records serves as the Certifying Official for all local governments in New York. The Division certifies to the Census Bureau the legality of boundary changes made by New York municipalities. Please be advised that the state can certify only those boundary change actions enacted by Local Law pursuant to Section 714 of the General Municipal Law. To assist them, please enter select “L – Local Law” from the Authorization Type drop down to indicate that this action is a local law. Enter the final Local Law number for each boundary change in the Authorization Number field on the BAS Entity Update Form, rather than the municipal ordinance or resolution number that initiated the action. Finally, please enter the date the annexation was filed with the Secretary of State in the Effective Date field on the same form.

## **9. Puerto Rico**

Under Puerto Rico law, boundary changes to municipios and barrios are reported to the Census Bureau by the Puerto Rico Planning Board only. The Puerto Rico Planning Board will report all boundary changes, approved by the Puerto Rico Government, effective on or before January 1 of each year

The Census Bureau and the Puerto Rico Planning Board collaborate to consolidate the updating of legal boundaries at the commonwealth level, after they have been approved by the Puerto Rico Legislature. The Planning Board maintains the most up-to-date boundary information for all municipios and barrios in Puerto Rico.

If you would like to review the boundary data that the Puerto Rico Planning Board has for your municipio and/or barrios, please visit <http://www.jp.gobierno.pr>. If you have any concerns about this data, contact Ms. Lillian Torres-Aguirre at 787-723-6200 ext. 2501.

## **10. Virginia**

The MCD used in Virginia for Census Bureau data tabulations is the district used for the election of a representative to the County Board of Supervisors. These districts usually are termed magisterial districts, but can have other designations, such as election or supervisor districts. Please review the boundaries of the county subdivisions in your county carefully to ensure that the names and boundaries conform to the areas functioning as districts for the election of county supervisors. Do not report taxing districts, districts used for the recording of land titles, or any other type of district that is not used in apportioning the representatives of the county board. If these districts are not called magisterial districts, put the correct description of the areas above the first data line showing the “NAME OF MUNICIPALITY OR MINOR CIVIL DIVISION” in Question 3. If you have a question about which MCDs you are to report, please contact:

U.S. Census Bureau  
Geography Division  
Geographic Entity Programs Branch  
Legal Areas Team  
Washington, DC 20233-7400  
Telephone: 301-763-1099  
Fax: 301-457-4710  
E-mail: [geo.bas@census.gov](mailto:geo.bas@census.gov)

If you report changes or corrections to the districts in your county, please ensure that you also report the effective date of the change.

## **11. West Virginia**

The MCD used in West Virginia for Census Bureau data tabulations is the magisterial district. Magisterial districts are the divisions of the county used for the election of county commissioners and members of the school board. Please review the boundaries of the county subdivisions in your county carefully to ensure that the names and boundaries conform to the areas called magisterial districts. Do not report taxing districts, districts used for the recording of land titles, or any other type of district that is not used in apportioning the representatives of the county board. If you have a question about which MCDs you are to report, please contact:


Patricia Hamilton  
Certified Association Executive  
West Virginia Association of Counties  
2211 Washington Street East  
Charleston, WV 25311  
Telephone: 304-346-0591  
Fax: 304-346-0592  
E-mail: [wwaco@wwaco.org](mailto:wwaco@wwaco.org)

If you report changes or corrections to the districts in your county, please ensure that you also report the effective date of the change.

## **12. Wisconsin**

Wisconsin law stipulates that all boundary changes to incorporated places and minor civil divisions within Wisconsin be reported to the office of Secretary of State. The Census Bureau has an ongoing working relationship with a state agency to conduct our annual Boundary and Annexation Survey. The state agency provides a list of incorporated places and minor civil divisions, which reported boundary changes, to the Census Bureau each year. The Census Bureau uses this list to determine who should get a BAS package.

## Appendix 3: Census Bureau Regional Offices - Contact information

	<p>Atlanta Regional Office 101 Marietta Street, N.W., Ste. 3200 Atlanta, GA 30303 (404) 730-3832 or (800) 424-6974 TDD: (404) 730-3964 FAX: (404) 730-3835 E-mail: <a href="mailto:atlanta.regional.office@census.gov">atlanta.regional.office@census.gov</a></p>	<p>Detroit Regional Office 1395 Brewery Park Blvd., Ste. 100 Detroit, MI 48207-2635 (313) 259-1158 or (800) 432-1495 TDD: (313) 259-5169 Fax: (313) 259-5045 E-mail: <a href="mailto:detroit.regional.office@census.gov">detroit.regional.office@census.gov</a></p>	
	<p>Boston Regional Office 4 Copley Place, Ste. 301 P.O. Box 9108 Boston, MA 02117 (617) 424-4500 or (800) 562-5721 TDD: (617) 424-0565 FAX: (617) 424-0547 Email: <a href="mailto:boston.regional.office@census.gov">boston.regional.office@census.gov</a></p>	<p>Kansas City Regional Office 1211 North 8th Street Kansas City, KS 66101 (913) 551-6728 or (800) 728-4748 TDD: (913) 551-5839 Fax: (913) 551-6789 E-mail: <a href="mailto:kc.regional.office@census.gov">kc.regional.office@census.gov</a></p>	
	<p>Charlotte Regional Office 901 Center Park Drive, Ste. 106 Charlotte, NC 28217 (704) 424-6400 or (800) 331-7360 TDD: (704) 344-6114 Fax: (704) 424-6944 E-mail: <a href="mailto:charlotte.regional.office@census.gov">charlotte.regional.office@census.gov</a></p>	<p>Los Angeles Regional Office 15350 Sherman Way, Ste. 400 Van Nuys, CA 91406 (818) 267-1700 or (800) 992-3530 TDD: (818) 904-6249 Fax: (818) 267-1711 E-mail: <a href="mailto:la.regional.office@census.gov">la.regional.office@census.gov</a></p>	
	<p>Chicago Regional Office 1111 W. 22nd Street, Ste. 400 Oak Brook, IL 60523-1918 (630) 288-9200 or (800) 865-6384 Fax: (630) 288-9288 TDD: (630) 288-9320 E-mail: <a href="mailto:chicago.regional.office@census.gov">chicago.regional.office@census.gov</a></p>	<p>New York Regional Office 395 Hudson Street, Ste. 800 New York, NY 10014 (212) 584-3400 or (800) 991-2520 TDD: (212) 478-4793 Fax: (212) 478-4800 E-mail: <a href="mailto:new.york.regional.office@census.gov">new.york.regional.office@census.gov</a></p>	
	<p>Dallas Regional Office 8585 N Stemmons Fwy, Ste. 800 S Dallas, TX 75247 (214) 253-4401 or (800) 835-9752 TDD: (214) 655-5363 Fax: (214) 655-5362 E-mail: <a href="mailto:dallas.regional.office@census.gov">dallas.regional.office@census.gov</a></p>	<p>Philadelphia Regional Office 833 Chestnut Street, Ste. 504 Philadelphia, PA 19107-4405 (215) 717-1800 or (800) 262-4236 TDD: (215) 717-0894 Fax: (215) 717-0755 E-mail: <a href="mailto:philadelphia.regional.office@census.gov">philadelphia.regional.office@census.gov</a></p>	
	<p>Denver Regional Office 6900 W. Jefferson Avenue, Ste. 100 Denver, CO 80235 (303) 264-0202 or (800) 852-6159 TDD: (303) 969-6767 Fax: (303) 969-6777 E-mail: <a href="mailto:denver.regional.office@census.gov">denver.regional.office@census.gov</a></p>	<p>Seattle Regional Office 601 Union Street, Ste. 3800 Seattle, WA 98101-1074 <b>(206) 381-6200 or (800) 233-3308</b> <b>TDD: (206) 381-6318</b> <b>Fax (206) 381-6310</b> <b>E-mail:</b> <a href="mailto:seattle.regional.office@census.gov">seattle.regional.office@census.gov</a></p>	



## Appendix 4 – Data Dictionary

<b>-County and Equivalent Areas Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
COUNTYNS	8	String	ANSI feature code for the county or equivalent feature
NAMELSAD	100	String	Name with translated LSAD code
LSAD	2	String	Legal/Statistical Area Description code
FUNCSTAT	1	String	Functional status
CLASSFP	2	String	FIPS 55 class code describing an entity
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective date or vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID (MTPS / Web BAS only)
AREA	10	Double	Area of update
RELATE	120	String	Relationship description
NAME	100	String	Entity name
VINTAGE	2	String	Vintage of the data

<b>-County Subdivisions Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
COUSUBFP	5	String	FIPS 55 county subdivision code
NAMELSAD	100	String	Name with translated LSAD
COUSUBNS	8	String	ANSI feature code for the county subdivision
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional status
CLASSFP	2	String	FIPS 55 class code describing an entity
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective date or vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID (MTPS and Web BAS only)
AREA	10	Double	Area of update
RELATE	120	String	Relationship description
NAME	100	String	Entity name
VINTAGE	2	String	Vintage of the data

<b>-Incorporated Place Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
PLACEFP	5	String	FIPS 55 place code
NAMELSAD	100	String	Name with translated LSAD
PLACENS	8	String	ANSI feature code for the place
LSAD	2	String	Legal / Statistical Area Description
FUNCSTAT	1	String	Functional status
CLASSFP	2	String	FIPS 55 class code describing and entity
PARTFLG	1	String	Indicates if only part of a feature is represented
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective date or vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID (MTPS and WebBAS only)
AREA	10	Double	Area of update
RELATE	120	String	Relationship description
NAME	100	String	Entity name
VINTAGE	2	String	Vintage of the data

<b>-Consolidated City Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
CONCITYFP	5	String	FIPS 55 place code
NAMELSAD	100	String	Name with translated LSAD
PLACENS	8	String	ANSI feature code for the place
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional status
CLASSFP	2	String	FIPS 55 class code describing an entity
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective date or vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID (MTPS and Web BAS only)
AREA	10	Double	Acreage of update
RELATE	120	String	Relationship description
NAME	100	String	Entity name
VINTAGE	2	String	Vintage of the data

<b>-Edges Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
TLID	10	Integer	Permanent edge ID
TFIDL	10	Integer	Permanent face ID (left)
TFIDR	10	Integer	Permanent face ID (right)
MTFCC	5	String	MAF/TIGER Feature Class Code
FIDELITY	1	String	Indication to a respondent when their entity boundary has changed through spatial enhancement
FULLNAME	40	String	Decoded feature name with abbreviated qualifier, direction, and feature type
SMID	22	Integer	Spatial Tmeta ID
BBSPFLG	1	String	Indicates the status of an EDGE for a selection as a block boundary
2010_BBSP	1	String	New BBSP flag
CHNG_TYPE	2	String	Type of linear feature update
LTOADD	10	String	Left To address
RTOADD	10	String	Right To address
LFROMADD	10	String	Left From address
RFROMADD	10	String	Right From address
ZIPL	5	String	Left zip code
ZIPR	5	String	Right zip code

<b>-Area Landmark Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Area landmark name
AREAID	22	Integer	Object ID
ANSICODE	8	String	ANSI code for area landmarks
CHNG_TYPE	2	String	Type of area landmark update
EFF_DATE	8	String	Effective date or vintage
RELATE	120	String	Relationship description
BAG	3	String	Block area grouping

<b>-Hydro Area Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
ANSICODE	8	String	ANSI code for hydrography area
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Hydro landmark name
CHNG_TYPE	2	String	Type of hydro area update
HYDROID	22	String	Object ID
RELATE	120	String	Relationship description

<b>-Point Landmarks Shapefile-</b>			
<u>ATTRIBUTE FIELD</u>	<u>LENGTH</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATEFP	2	String	FIPS state code
COUNTYFP	3	String	FIPS county code
POINTID	22	Integer	Object ID
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Point landmark name
CHNG_TYPE	2	String	Type of point landmark update

## Appendix 5: 2008 Digital BAS – Example Process

Note: This example uses an incorporated place participant as the subject. A county reporting for incorporated places may use the same process.

### 1. Opening Census Bureau Shapefiles

Enclosed with your Digital BAS Materials should be a ZIP file with all necessary shapefiles as well as a PDF copy of the 2008 Digital BAS Respondent Guide. Use these materials to create your Digital BAS submission for 2008. If any questions arise please do not hesitate to contact the Legal Areas Team at 301-763-1099.

- ❑ Open the CD and unzip the data to ensure that the correct data has been sent to your entity. For an incorporated place both the incorporated place and edges layers are critical: **bas\_<yyyy>\_place\_<ssccc>.shp** and **bas\_<yyyy>\_edges\_<ssccc>.shp**.

*Note: <basID> represents an eleven digit entity code that is unique to each geographic area. This code can be found on the Digital BAS data CD.*

- ❑ It is suggested that you make an extra copy of the data in the case that a file becomes corrupted, an error is made, etc.

### 2. Symbolizing Layers in ArcGIS

To most effectively create change polygons it is good to have symbolization that easily distinguishes between different types of linear features and geographic areas.

Symbolizing linear features in the edges layer

- ❑ Using the Layer Properties for the Edges layer symbolize the linear features by grouping like MTFCC codes.
- ❑ Table 2.1 will help you to determine which MTFCC types should be grouped and how they can be best symbolized.





MTFCC 1 <sup>st</sup> Character...	Linear Feature Type	Symbol
H	Hydrology	
P	Non-Visible Feature (boundary)	
R	Railroad	
S	Road	

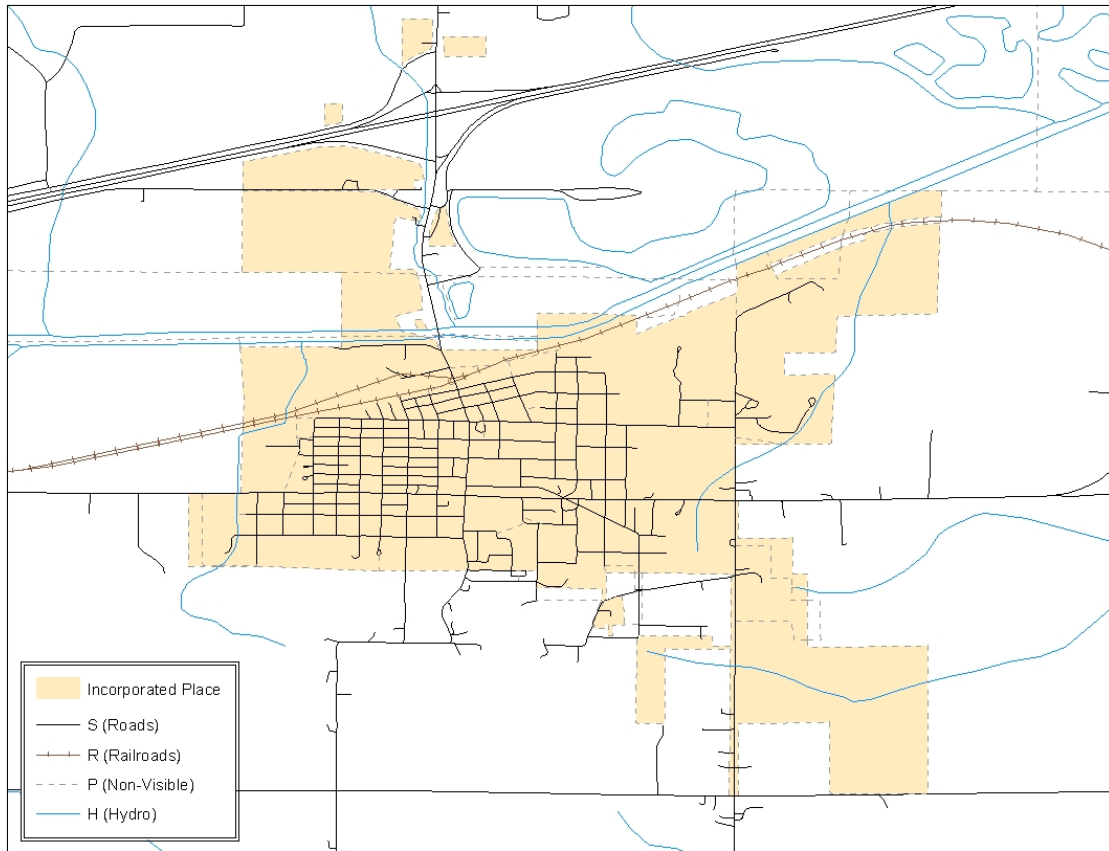
Table 2.1

Symbolizing geographic areas

- ❑ Symbolize the place layer using Fill Color of RGB (255,235,190) with no outline.

*Note: If you are a county participant with many adjacent incorporated places you may want to use different colors to distinguish one place from another.*

- ❑ Example 2.2 depicts how the incorporated place layer and the edges layer would look after they are symbolized as described above.



**Example 2.2**

### **3. Creating and Splitting Lines**

Not all linear features that are needed to create change polygons will exist in the MAF/TIGER database. Therefore it will be necessary to create and split lines to form your changes. The existing and newly created linear features will be selected to form and create the boundary changes which will be submitted to the Census Bureau.

Creating new linear features



- ❑ *Table of Contents >> Selection*

Uncheck the incorporated place layer so that the only layer that can be selected while editing are the linear features in the edges layer.

- ❑ *Activate Editor Toolbar >> Start Editing*

- ❑ *Task* should be set to Create New Feature and *Target* should be set to the edges layer (bas<yy>\_<basID>\_edges.shp)
- ❑ *Editor >> Snapping...*

*Vertex*, *Edge*, and *End* should be checked for the edges layer. Using snapping will ensure that newly created lines will be coincident with linear features currently in MAF/TIGER.

- ❑ Create new linear features using the *Sketch* tool 
- ❑ On the Editor Toolbar select the *Attributes* button  and enter the code “P0001” into the MTFCC attribute field



An MTFCC must be added to each new linear feature so that it is displayed on the map. Use “P0001” as the default non-visible feature value. If you wish to submit linear feature changes it is best to create those in a separate process.

Reminder! Click *Editor >> Save Edits* often so that work is not lost

### Splitting linear features

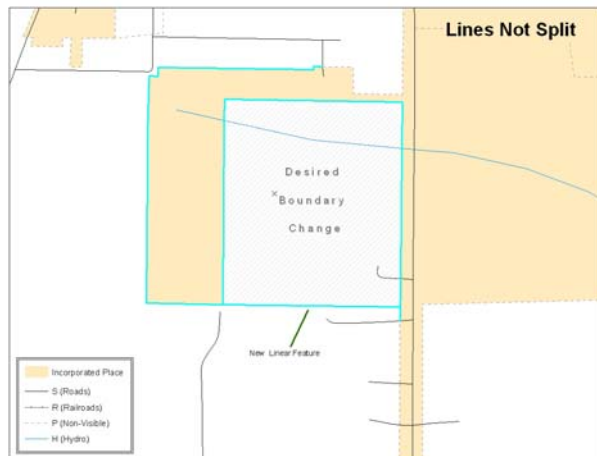
- ❑ Activate *Editor Toolbar >> Start Editing*

If you are continuing on from creating new linear feature this step will have already been completed. Check to see that the *Task*, *Target*, and *Snapping* match what was selected above.

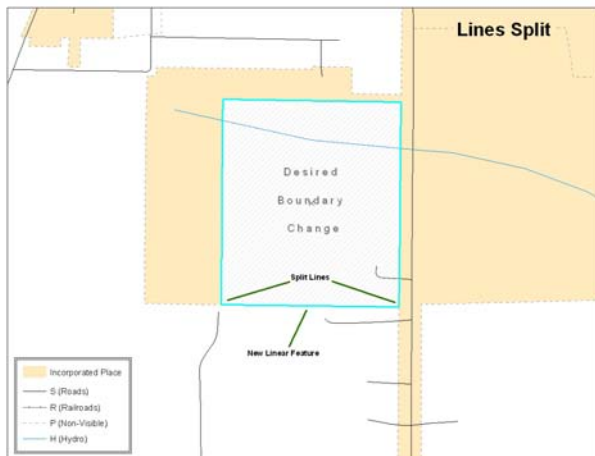
- ❑ Select linear features that need to be split using the *Edit Tool*  on the Editor Toolbar
- ❑ Click the *Split Line* tool  after the line that should be split is selected. Click in the location where you wish to split the line.

Examples 3.1 and 3.2 displays why it may be necessary to split lines when creating change polygons. In Example 3.1 the intended boundary change is indicated with grey hatching. However you can see that when selecting lines to form the boundary change, additional linear features are selected. Example 3.2 shows where two existing MAF/TIGER linear features can be split to create the desired boundary change.

- ❑ *Editor >> Save Edits* after all linear feature updates have been made



**Example 3.1**



**Example 3.2**

#### 4. Selecting Lines and Creating Change Polygons

After creating and splitting any necessary linear features those existing features can be selected to form change polygons. Each change polygon must be created and coded separately. The steps below show how any type of boundary change can be created.


Creating change polygons

- ❑ Activate the *Editor Toolbar >> Start Editing*

Verify that the edges layer is the only selectable layer in the *Table of Contents*

- ❑ Select the linear features that comprise an annexation using the *Edit Tool* by holding the *Shift* key while selecting each linear feature segment
- ❑ Activate the *Topology Toolbar*
- ❑ In the *Editor Toolbar* switch the *Target* from the edges layer to the incorporated place layer.

In order to create change polygons using the linear features which have been selected the *Target* in the *Editor Toolbar* must be switched to the incorporated place layer. Then using the *Topology Toolbar* and the *Construct Features* tool, change polygons can be easily created.

- ❑ With all linear features that compose a single boundary change selected click the *Construct Features*  tool on the *Topology Toolbar*
- ❑ Click *OK* on the *Construct Features* dialog box. The default *Cluster Tolerance* can be accepted

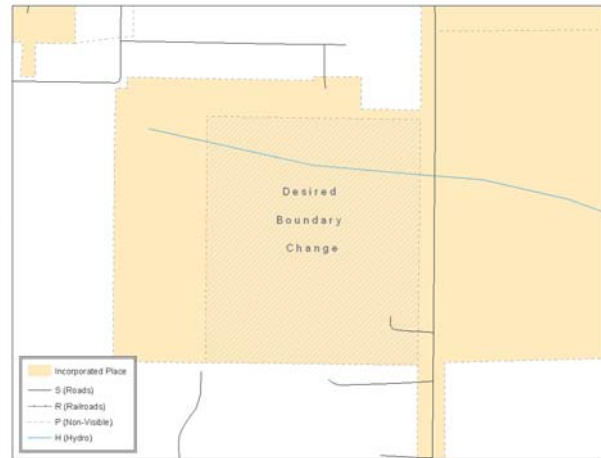
The polygon will become part of the incorporated place; however will not have any attribute values associated to it. Example 4.1 displays the selected linear features for the



boundary change. In Example 4.2 you can see how the desired boundary change is created from the selected lines and the construct features tool.



**Example 4.1**



**Example 4.2**

The next section will describe how to appropriately attribute each boundary change that is created.


## 5. Attributing Change Polygons

After each change polygon has been created, it must be correctly attributed so that the boundaries can be appropriately updated in the MAF/TIGER database. You may also elect to update the attributes for each change polygon after you have created all of your boundary changes. The following steps will show how to correctly attribute each type of boundary change. Table 6.4.1 in the guide indicates the attributes that are required for each type of boundary change.

### Annexations

#### ❑ *Table of Contents >> Selection*

Check the incorporated place layer. This will enable you to select the change polygons that you have created. The edges layer can remain checked, or unchecked, however you prefer.


- ❑ Using the *Edit Tool* button select the annexation polygon that you have created
- ❑ With the annexation polygon selected click the *Attributes*  tool on the *Editor Toolbar*
- ❑ When the Edit Attributes dialog box appears fill out the mandatory fields required for an annexation. These include: NAME, CHNG\_TYPE, DOCU and EFF\_DATE

The CHNG\_TYPE for an annexation is 'A'

## Deannexations

### ❑ *Table of Contents >> Selection*

Check the incorporated place layer. This will enable you to select the change polygons that you have created. The edges layer can remain checked, or unchecked, however you prefer.


- ❑ Using the *Edit Tool* button select the deannexation polygon that you have created
- ❑ With the annexation polygon selected click the *Attributes*  tool on the *Editor Toolbar*
- ❑ When the Edit Attributes dialog box appears fill out the mandatory fields required for a deannexation. These include: NAME, CHNG\_TYPE, DOCU and EFF\_DATE

The CHNG\_TYPE for a deannexation is 'D'

## Boundary Corrections

### ❑ *Table of Contents >> Selection*

Check the incorporated place layer. This will enable you to select the change polygons that you have created. The edges layer can remain checked, or unchecked, however you prefer.

- ❑ Using the *Edit Tool* button select the boundary correction polygon that you have created
- ❑ With the boundary correction polygon selected click the *Attributes*  tool on the *Editor Toolbar*
- ❑ When the Edit Attributes dialog box appears fill out the mandatory fields required for a boundary correction. These include: NAME, CHNG\_TYPE, and RELATE


The CHNG\_TYPE for a boundary correction is 'B.' In the RELATE field enter 'IN' if the boundary correction is adding area or 'OUT' if the boundary correction is removing area.

## Geographic Corridors

### ❑ *Table of Contents >> Selection*

Check the incorporated place layer. This will enable you to select the change polygons that you have created. The edges layer can remain checked, or unchecked, however you prefer.

- ❑ Using the *Edit Tool* button select the boundary correct polygon that you have created

- ❑ With the geographic corridor polygon selected click the *Attributes*  tool on the *Editor Toolbar*
- ❑ When the Edit Attributes dialog box appears fill out the mandatory fields required for a geographic corridor. These include: NAME, CHNG\_TYPE, and RELATE

The CHNG\_TYPE for a geographic corridor is 'C.' In the RELATE field enter the width of the corridor on each side of the centerline (Left Side, Right Side) (30, 30).

## 6. Exporting Change Polygons

After creating and coding the change polygons you will want to export them to a separate change polygon layer, which will be submitted to the Census Bureau. This process will need to be completed for each level of geography (county, place, MCD) that has changes.

- ❑ Main Menu >> *Selection* >> *Select by Attributes*
- ❑ *Layer* should be set to the incorporated place layer (bas\_<yyyy>\_place\_<ssccc>.shp).
- ❑ *Method* should be set to 'Create a new selection'.
- ❑ In the *Select \* From \* Where* box an equation should be written so that each polygon with a change type is selected. Two equations are below:

**“CHNG\_TYPE” < > ‘ ’**

The equation above would select all polygons that have any change type (i.e. all change polygons which you have created and coded).

**“CHNG\_TYPE” = ‘A’ OR “CHNG\_TYPE” = ‘B’ OR... (etc.)**

The equation above can be written to select each change type for polygons that were created and coded.

- ❑ Click *OK*

After clicking OK each change polygon that you created and coded should be highlighted on the map and in the attribute table. You may want to open the attribute table and sort to verify that all change polygons with a change type code were selected.

- ❑ Right click the incorporated place layer >> *Data* >> *Export Data...*
- ❑ *Export* should be set to 'Selected features'
- ❑ Select 'this layer's source data' as the coordinate system to export to
- ❑ Save the output shapefile to your desired location naming it according to the naming conventions found in Section 6.8.1. (i.e. bas<yy>\_<basID>\_changes).

Once you have exported your change polygon file you should review the file according to Section 6.6. After you have reviewed your file please ZIP together any change polygon, feature, or landmark layers and name the ZIP file according to the guidelines in Section 6.8.4.

## 7. FTP the ZIP file to the Census Bureau

The ZIP file that you have created now should be FTP'ed to the Census Bureau. You will do this using the Census Bureau's 'Send A File' utility.

Using Internet Explorer navigate to <http://www2.census.gov/cgi-bin/basupload>

This is the 'Send A File' utility where you will submit your file to the Census Bureau.

☐ **Source Information (Local)** >> *File to Send:* >> *Browse...*

Browse to the location where your ZIP file is stored.

☐ **Target Information (Remote)** >> *Directory to Receive File*

In the *Directory to Receive File* box please type: */geo/Digital\_BAS*. You do not need to enter any information into the *New File Name* box.

☐ **Notify by Email** >> *Census Bureau Employee's Email Address*

In the *Census Bureau Employee's Email Address* box please enter: [geo.bas@census.gov](mailto:geo.bas@census.gov). Please also enter your email address in the *Sender's Email Address* box.

☐ Enter the *Verification Code* in the box provided at the bottom of the screen and click the *Upload* button after you confirm that everything on the page is correct.